

Chapter 6: Using information databases

Meridian IVR has a built-in database facility that is very useful in building applications. The Meridian IVR database stores data in the form of character strings that can be used as part of your application. Information databases are created with the Meridian IVR Database Editor. This chapter explains the following topics and procedures, explaining how to create a new information database and edit an existing information database:

- understanding information databases
- planning an information database
- using an information database
- opening the Database Editor
- creating the database
- creating the template
- importing and exporting records
- creating record locations
- adding or changing data
- formats for importing and exporting data
- exiting the database
- loading an existing database
- editing the template
- deleting record locations
- exiting the database editor
- deleting a database

Understanding information databases

Understanding the following terms will help you to understand how information is structured and stored within an information database.

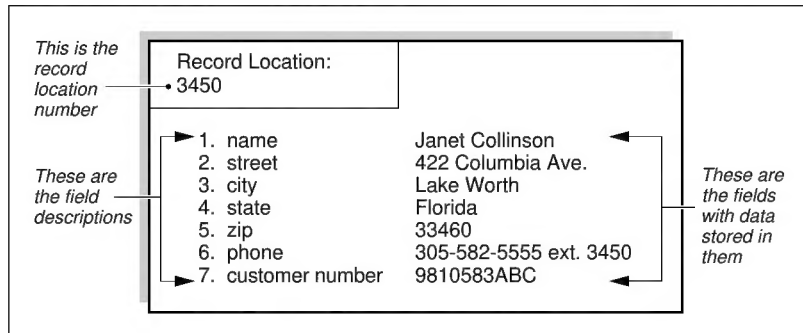
Database name

The database name identifies the overall contents of the database. It can be up to eight characters long and can include any characters except spaces, asterisks, pound signs, and question marks.

Records

Each information database consists of a set of records. A single record is shown in Figure 6-1. Each record on a database occupies 310 bytes of space.

Figure 6-1
An example of a record in a database



Field

Each record consists of up to ten fields, each storing up to 31 characters including letters, numbers, spaces, or any other keystroke, excluding commas.

Field description

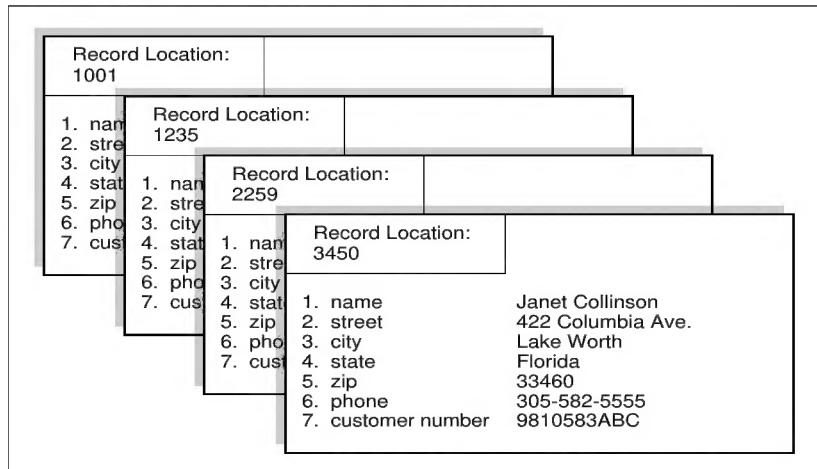
Each field can have a field description to help keep track of the kinds of data that have been stored. Every record in a particular information database has the same set of field descriptions.

Record location number

Because there can be many records in a single information database, each one has an identification number called a record location number (see Figure 6-2). The information database is designed to associate the information in a record with a number. Although any number can be used, the record location number is typically a telephone number. When creating a database, the system asks for the valid record locations, and allocates space for each record. For example, records 10 000–25 000 would allocate 15 000 records, each about 310 bytes long, for a total of about 4.65 Mbytes.

Figure 6-2

A series of records in an information database



Planning an information database

Before you begin working with the Database Editor to build an information database, you should plan the database by following the steps in this section. While you can create more than one information database, the maximum number of databases that Meridian IVR applications can use at the same time is 20.

- Decide what information you want to store in the records. Up to ten fields can be used to store information.
- Choose a set of field descriptions for the records. Field descriptions are not required, but we recommend that you use them because they act as reminders for the types of information stored in the database.
- If you want to have an application use the information stored in a database, you need to plan the application. You can build the application either before or after you create the database.
- Choose the maximum number of digits in the record location number. (To review record location numbers, see Figure 6-2).
- Choose a name for the database.

Using an information database

You can use the information that you store in an information database in the following two ways:

- You can create applications that use the CHEK (Check Database) cell type to find and extract data from an information database making the information available to other cells in the application.
- You can return to the Database Editor interface, and simply read the information from the window without formally linking any information from the database to the application.

The following paragraphs provide a detailed example of the way in which an application can use the information you store.

The CHEK (Check Database) cell type is the only cell type used in an application to extract data from an information database. When you create a CHEK cell, you identify the name of the information database that you want it to use, as well as the names of the buffers in which to place extracted information.

The CHEK cell determines whether a record exists for a specified record location number within the selected information database. If the record does not exist, CHEK branches to the “not found” next cell. If the CHEK cell successfully finds the specified record, then information from the record can be copied to buffers within the application. Once information from the record has been made available to the application, it can be used by the application.

The following example illustrates how the CHEK cell handles data in an information database. The CHEK cell type has three parameters:

- **Database name**—The name of the database that the CHEK cell will check.
- **Record location number**—The record location number of the specific record in the database.
- **Number of output buffers**—The number of buffers used to copy data from the database if the specified record is found.

The CHEK cell has one table, known as the Output Buffer Table on which you list the names of the output buffers.

Suppose you have an application with a CHEK cell for which you have selected the following parameter values:

- **Database name:** customers
- **Customer number:** 2976
- **Number of output buffers:** 7

An automatic update occurs once the changes are applied.

For example, if you list seven buffers in the Output Buffer Table: NAME, ADDRESS, CITY, STATE, ZIP CODE, DATA1, and DATA2, and the name of the information database is Customers, and the record location number is 2976, the data will be stored as shown in Figure 6-3.

Figure 6-3
Sample database record

Record Location: 2976	
1. name	Jane Goodcustomer
2. street	19 Avenue Road
3. city	Cleveland
4. state	NINTH
5. zip	58041
6. customer number	3912
7. work phone	216-660-9077
8. home phone	216-571-1043
9.	
10.	

When you run this application, the CHEK cell checks for the existence of the customers database, looks for record number 2976, and copies data from the record into its output buffers. Copying begins with the first field and ends when all of the output buffers have been used. When CHEK finishes, the output buffers contain the following data:

Buffer Contents

- NAME Jane Goodcustomer
- ADDRESS 19 Avenue Road
- CITY Cleveland
- STATE NINTH
- ZIP CODE 58041
- DATA 1 3912
- DATA 2 216-660-9077

Since only seven output buffers have been specified, the CHEK cell copies data only from the first seven fields. The data from the “home phone” field are not copied from the record to the buffers. The copying process does not alter the information database in any way. When the data have been copied into the application buffers, the application can use that data in any of the ways that applications use buffer data. For example, there could be a PDAT (Play Prompts with Data) cell to read the phone number stored in the DATA2 buffer to the caller.

Opening the Database Editor

The Database Editor creates, names, and edits information databases.

Procedure 6-1

Opening the Database Editor

- 1 Click on the database icon from the IVR main menu.

The Database Editor opens, as shown in Figure 6-4.

Figure 6-4
Database Editor

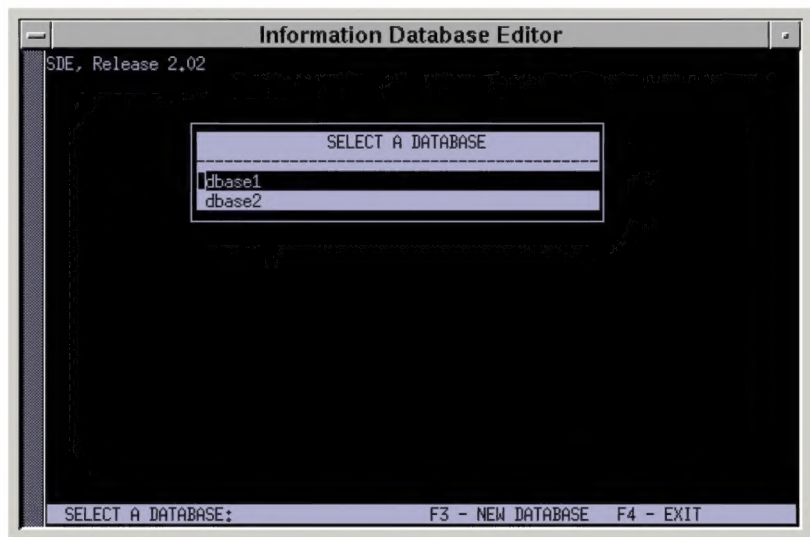


Table 6-1
Function of keys in Database Editor windows

Key	Function
<Up Arrow>	moves the cursor up one line
<Down Arrow>	moves the cursor down one line
<Left Arrow>	moves the cursor to the top of the page
<Left Arrow>	moves the cursor to the bottom of the page
<Enter>	selects the item at the cursor

Procedure 6-2
Creating the database

- 1 From the Database Editor main menu, press <F3> for New Database.

The following prompt appears:

Enter The Name Of The Database:

2 Type a name.

A message or information database name can be up to eight characters long and can include any characters except spaces.

3 When you have finished typing the name, press <Enter>.

The following prompt appears:

Enter The # Of Digits (between 4 and 11, inclusive):4

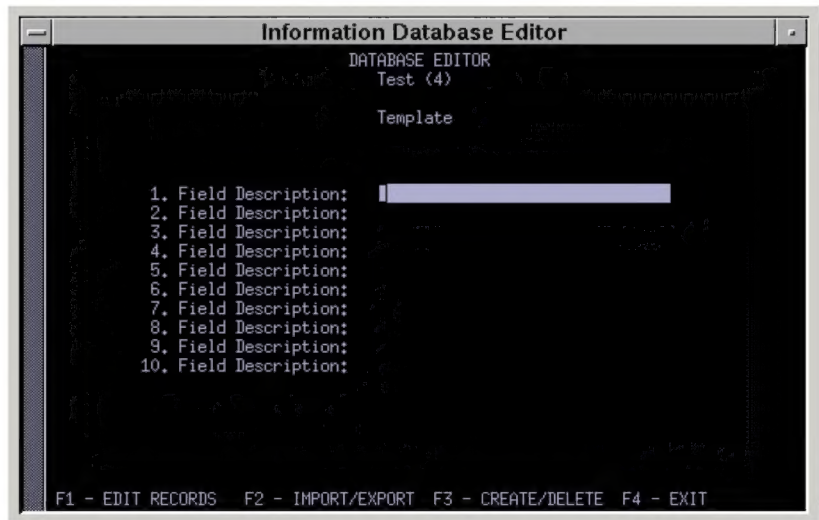
4 Type any value from 4 to 11 and press <Enter> to enter the new value, or press <Enter> to accept the default value of 4.

In this step, you select the number of significant digits for this database. For an information database, the number of significant digits is the maximum number of digits in the record location number. Usually, record locations are associated with Direct Inward Dialing (DID) digits, and DID channels are usually configured to receive 4 digits, so the number of significant digits is very often 4.

Note: Be careful when choosing the number of significant digits because once the number has been chosen, it cannot be changed.

The Database Editor displays the Template window with the name and number of significant digits as shown in Figure 6-5.

Figure 6-5
Template window



The name of the database appears on this window (for example, NAME), and the number of significant digits appears in parentheses next to the database name (for example, 4).

- 5 You can use this window to go to an existing record or to create a template. To go to an existing record, use the <F1> key at the bottom of the window. To create a template, refer to the next section.

Creating the template

After you have named the database and chosen the number of significant digits, you can create a template for the database, as shown in Figure 6-6. The template is simply the set of field descriptions used by every record in the database.

Figure 6-6
Example of a template for a database

Record Location:
 ----- •

This database has 4 significant digits

1. name
 2. street
 3. city
 4. state
 5. zip
 6. phone
 7. customer number
 8.
 9.
 10.

These are the field descriptions

Procedure 6-3
Creating the template

- 1 Move the cursor to a location where you want a field description, then type the description.

Field descriptions can be up to 31 characters long and can include any of the characters on the keyboard except commas.

If you begin or end a field description with blanks, those blanks are removed automatically. If you make a mistake, press <Backspace> to delete characters.

- 2 After you type a field description, press <Enter>, <Tab>, or the <Down> arrow key.

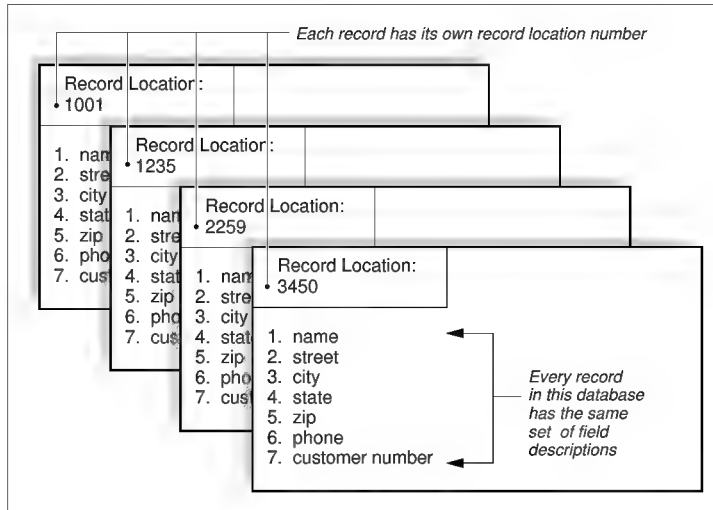
The cursor advances to the next field.

- 3 Repeat Steps 1 and 2 until all of your field descriptions are entered.

Creating record locations

After you have created the template, the next step is to create record locations. For each record location that you create, you have one record as shown in Figure 6-7. When you created the database, you selected a value for the number of significant digits; this determines the length of the record location numbers. For example, if the number of significant digits is 4, the record location numbers can be any numbers from 0–9999. For more information on record/disk space considerations, refer to the section “Planning an information database” on page 6-4.

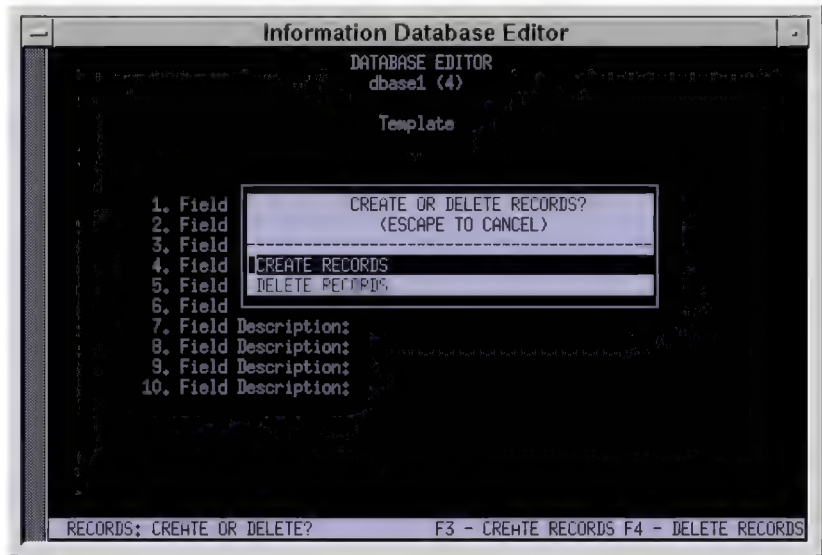
Figure 6-7
Record location numbers



Procedure 6-4
Creating record locations

- 1 Press <F3> for CREATE/DELETE.
The Database Editor displays a pop-up menu.
- 2 Move the highlight bar to indicate whether you want to create or delete a record (see Figure 6-8).

Figure 6-8
Create/Delete Record pop-up menu



- 3 Select Create Records.

The following prompt appears:

Enter Record To Create:

- 4 Type a number for a single record location, or type a range of numbers.
 To enter a range, type the beginning number, a hyphen, and an ending number. For example, to enter the numbers from 1 to 2000, type the following without spaces:

1-2000

- 5 Press <Enter>.

The system creates record location or locations and the message disappears.

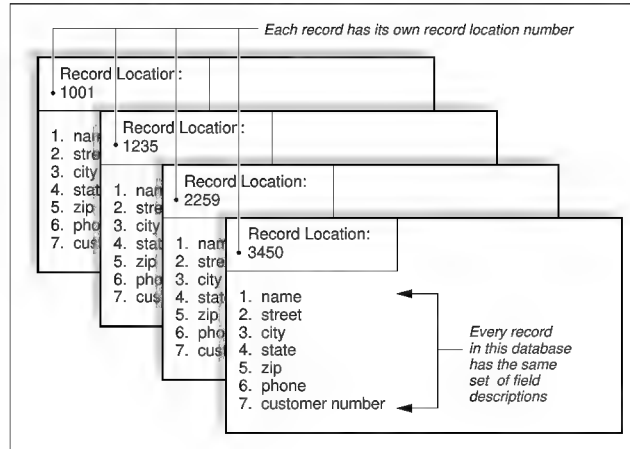
- 6 Repeat Steps 1, 2, and 3 to create as many record locations as you need.

After you have created record locations, you are ready to add data to the database.

Adding or changing data

Once you have created record locations, you can add data at those locations. After you have added data, you can change it at any time, even when the database is being used by applications. Figure 6-9 illustrates a series of records with stored data.

Figure 6-9
Records with stored data

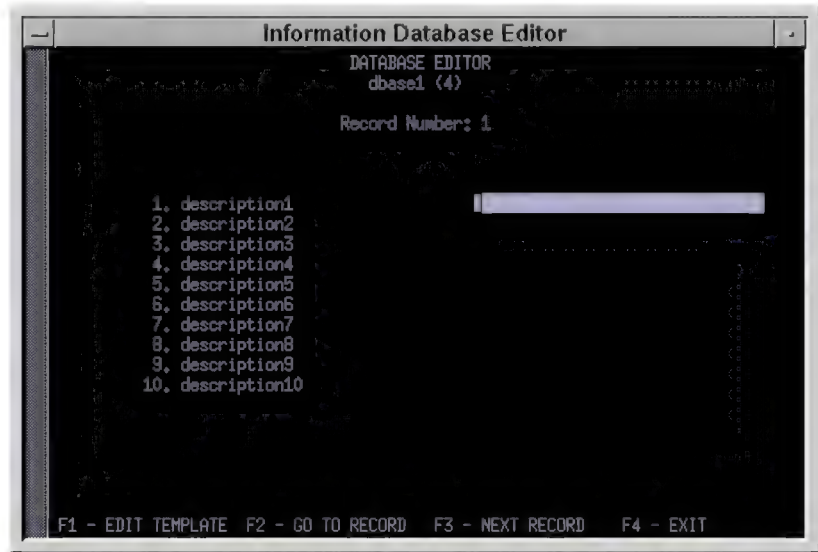


Procedure 6-5 To add or change data

- 1 From the Template window, press <F1> for Edit Record.

The Record Location window (Figure 6-10) appears, corresponding to the lowest existing record location number.

Figure 6-10
Record Location window



2 If necessary, press <F2> for GO TO RECORD to display the window corresponding to another record. Procedure 6-9 explains how to go to a specific record.

3 Use the arrow keys to move the cursor to any field, then type the information you want to store there.

Note: If there was already information in that field, it disappears when you begin to type.

If you make a mistake, press <Backspace> to delete characters.

4 When you have finished typing the information, press <Enter>.

Note: You cannot export a database with more significant digits to a database with less significant digits.

Formats for importing and exporting data

From the Template window you can use the function key <F2> for importing or exporting information databases. The export function writes out the contents of the information database to an ASCII file that you specify. This file resides in the sys_files directory. Meridian IVR supports two formats for exporting data, internal and CSV. The internal format is compatible with the Meridian IVR local databases. The Comma Separated Value (CSV) allows Meridian IVR local database data to be exported to other software packages.

The internal format of the export file is the following:

record.field:data

where

- **record** is the entry in the database where the data is located
- **field** is the offset in the entry where the data is located
- **data** is the information entered in the database

The record and field can be ranges that are separated with a dash (-) if the same data resides in consecutive records and/or fields

The CSV format of the export file is the following:

record#, field1,field2,field3,...,field10

where

- **record#** is the entry in the database where the data is located
- **field1–field10** are the data in these fields

Procedure 6-6 Importing data

- 1 Open the Database Editor.

Note: To import data, you must have already created a database for your data to populate. If you have not created a database for the data you are importing, create one now.

- 2 Select the database where you want the data to be imported. Press <Enter>.

The Template file appears for the database you selected.

- 3 Press <F2> for Import/Export.

The pop-up menu in Figure 6-11 appears.

- 4 Select Import Info.

- 5 Press <Enter>.

- 6 The following message appears on the window.

Enter format (CSV | internal):

Note: You can choose only one format. See the section “Formats for importing and exporting data” on page 6-16.

- 7 When you enter the format, the following prompt appears:

Enter File name:

- 8 Enter the ASCII file name of the data you want to import.

- 9 Press <Enter>.

Your database is imported from the ASCII file you created in the sys_files directory. The database on the window is populated with the data.

- 10 Press <F4> to exit.

Note: You can import databases.

Procedure 6-7 Exporting data

- 1 Open the Database Editor.

- 2 Select the database to export.

- 3 Press <F2> for IMPORT/EXPORT.

The pop-up menu as shown in Figure 6-11 appears.

Figure 6-11
Import/Export pop-up menu



- 4 Select Export Info.

- 5 Press <Enter>.
- 6 The following prompt appears on the window:
`Enter format (CSV | internal):`
Note: You can choose only one format. See the section “Formats for importing and exporting data” on page 6-16.
- 7 When you enter the format, the following prompt appears:
`Enter File name:`
- 8 Enter the name of the file where you want to export the data.
The database on the window is exported to the ASCII file you created in the sys_file directory.
- 9 Press <F4> to exit.

Changing record locations

Follow this procedure when the Record Location window appears and you want to change from the record location on the window to any other record location or locations.

There are two ways to change record locations:

- You can go to the next consecutive location.
- You can go to any location you specify.

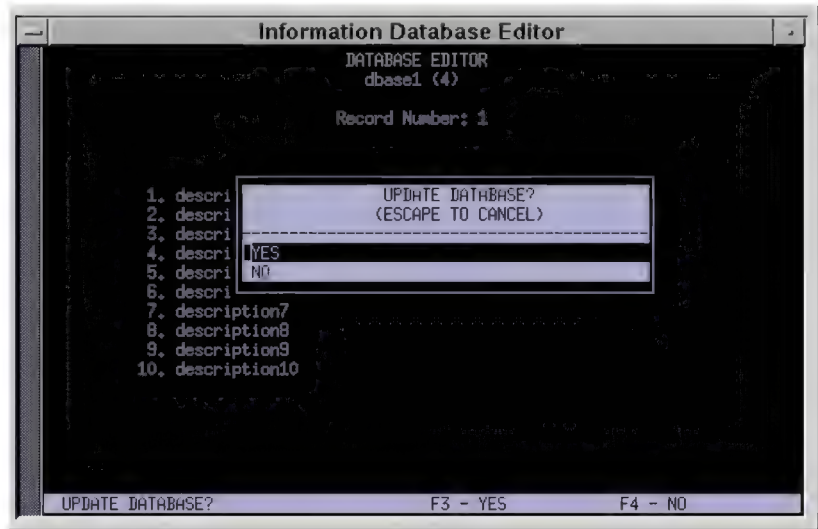
Procedure 6-8

Going to the next record location

- 1 From the Record Location window (see Figure 6-7), press <F3> for Next Record; or, if you would like to go to any other record location, press <F2> for Go to Record.

If you have made changes to the data at the current record location, the Update Database pop-up menu appears (see Figure 6-12).

Figure 6-12
The Update Database pop-up menu



- 2 If you want to save the changes you made, move the cursor to YES. If you do not want to save the changes you made, move the cursor to NO.

- 3 Press <Enter>.

You go to the next consecutive record location. The record location number appears at the top of the window.

Note: If you were on the last location, you go to the first location.

Procedure 6-9 **Going to a specific record number**

- 1 From the Record Location window, press <F2> for Go To Record.
 If you have made changes to the data at the current record location, the Update Database pop-up menu appears (see Figure 6-12).
- 2 If you want to save the changes you made, move the cursor to YES. If you do not want to save the changes you made, move the cursor to NO.
- 3 Press <Enter>.

The following prompt appears:

Enter Record:

- 4 Type a number for a single record location, or type a range of numbers,
- 5 Press <Enter>.

The record location or locations appear at the top of the window.

Exiting the database

When you have finished working on the database, you can exit it by following these steps:

Procedure 6-10 **Exiting the database**

- 1 From the Record Location window, press <F4>.

If you have made changes to the data at the current record location, you see the Update Database pop-up menu again (see Figure 6-12).

- 2 If you want to save your most recent changes to the database, move the cursor to YES and press <Enter>.

Your changes are saved and you return to the Database Editor main menu.

If you want to exit without saving the most recent changes, move the cursor to NO and press <Enter>.

Your changes are not saved and you return to the Database Editor main menu.

Loading an existing database

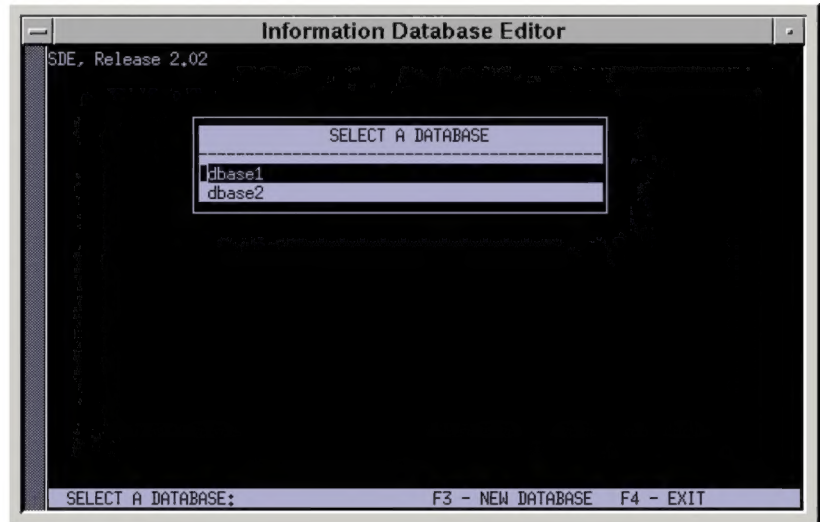
Loading is the process of reopening a database so that you can work on it again. You can return to an existing database and edit it at any time, even when it is being used by an application.

Procedure 6-11 **Loading a database**

- 1 From the Database Editor main menu (see Figure 6-13), use the arrow keys to move the cursor until it is on the name of the database you want to load.
- 2 Press <Enter>.

The database opens, and the Edit Record window for the lowest-numbered record location appears.

Figure 6-13
Select a Database pop-up window



Editing the template

You can edit the template by changing the field descriptions.

Procedure 6-12 **Editing the template**

- 1 From the Record Location window (see Figure 6-10), press <F1> for Edit Record.

The Template window appears (see Figure 6-5) .

- 2 Use the arrow keys to move the cursor to any field that you want to change, and type a new description.

The field description changes.

Deleting record locations

When you delete the record location, the data stored at that location is erased permanently.

Procedure 6-13

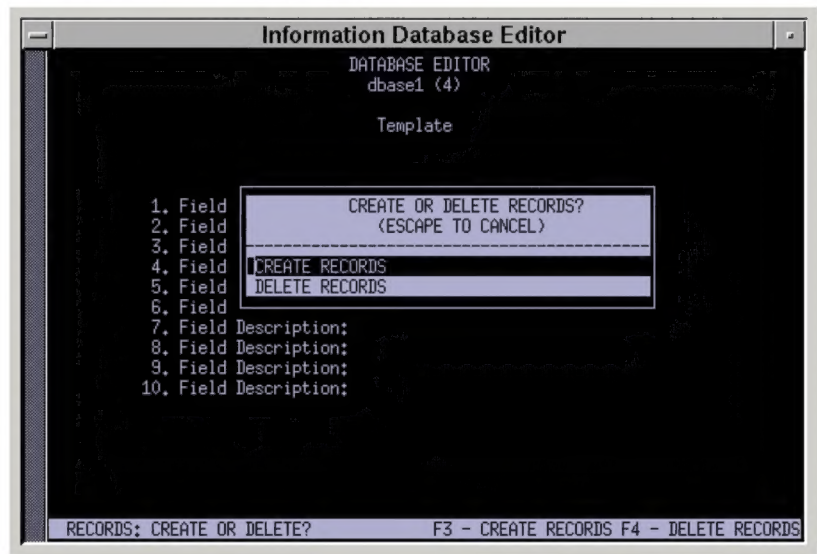
Deleting a record location

- 1 From the Template window, press <F3> for CREATE/DELETE.

The Create/Delete Record pop-up menu appears (see Figure 6-14).

Figure 6-14

Create/Delete Record pop-up menu



- 2 Select DELETE RECORDS.

The following prompt appears:

Enter Record to Delete:

- 3 Type a number for a single record location, or type a range of numbers.
- 4 Press <Enter>.

If you cannot delete the record(s) you select, an error message appears.

If you succeed in deleting the record(s) you select, the Template window for the database reappears (see Figure 6-5).

Procedure 6-14
Exiting the Database Editor

- 1 From the Database Editor main menu, press <F4> for Exit.
The Database Editor closes.

Deleting a database

You must be in the UNIX shell to delete a database.

Procedure 6-15
Deleting a database from the UNIX shell

- 1 Change to the directory `/u/ivr/sys_files`.
- 2 Enter the following command: **rm dbname** and press <Enter>.

**CAUTION!**
Risk of losing system files

If you have two databases named *db* and *db1.ext*, you can type **rm db*.*** to delete both files at the same time.

The first asterisk represents any character(s) that follow the file name. The second asterisk represents the extension.

We recommend that you do not perform this procedure. However, if it is necessary, do not type a space between the database name and *.* otherwise not only will you erase the database named *db*, you will also erase system files that have extensions.